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(54) Title: **TECHNETIUM- AND RHENIUM-BIS(HETEROARYL) COMPLEXES, AND METHODS OF USE THEREOF**

(57) Abstract: One aspect of the invention relates to complexes of a radionuclide with various heteroaryl ligands, e.g., imidazolyl and pyridyl ligands, and their use in radiopharmaceuticals for a variety of clinical diagnostic and therapeutic applications. Another aspect of the invention relates to imidazolyl and pyridyl ligands that form a portion of the aforementioned complexes. Methods for the preparation of the radionuclide complexes are also described. Another aspect of the invention relates to imidazolyl and pyridyl ligands based on derivatized lysine, alanine and bis-amino acids for conjugation to small peptides by solid phase synthetic methods. Additionally, the invention relates to methods for imaging regions of a mammal using the complexes of the invention.



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